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EPA Superfund
Record of Decision:

HEBELKA AUTO SALVAGE YARD
EPA ID: PAD980829329
OU 02
WEISENBERG TOWNSHIP, PA
09/30/1991

SCRAP AUTOMOBILE TIRES AND LAWN TRACTORS, OCCASIONAL PILES OF MISCELLANEOUS SCRAP OR TRASH, EMPTY STORAGE TANKS, AND EMPTY DRUMS. THE MAJOR ACCUMULATION OF WASTE MATERIAL, THOUGH, CONSISTS OF DISCARDED AUTOMOTIVE BATTERIES NOW LOCATED IN TWO DISTINCT PILES AT THE SITE.

FOUR HOMES EXIST ON OR IMMEDIATELY ADJACENT TO THE SITE. TWO RESIDENCES ARE LOCATED ON ADJACENT LAND ALONG THE NORTHWEST PERIMETER OF THE SITE. A THIRD HOME IS LOCATED ALONG THE SITE'S SOUTHERN PROPERTY LINE AND IS SURROUNDED BY THE SITE ON THREE SIDES. THE FOURTH HOME IS THE HEBELKA HOME. IT IS LOCATED NEAR THE SOUTHEASTERN CORNER OF THE SITE WHICH IS ALSO KNOWN AS THE HEBELKA AUTO SALVAGE YARD. A MOBILE HOME WHICH APPEARS TO SERVE AS AN OFFICE AND A FRAME SHED ARE ALSO LOCATED ON THE HEBELKA PROPERTY NEAR THE SOUTHERN BOUNDARY.

#SHEA
2. SITE HISTORY AND ENFORCEMENT ACTIVITIES

THE HEBELKA SITE WAS PURCHASED IN 1958 BY MR. AND MRS. JOSEPH HEBELKA, BOTH NOW DECEASED. THE PROPERTY IS CURRENTLY PART OF THE ESTATE OF LOVIE M. HEBELKA. DURING THE PERIOD BETWEEN 1958 AND 1979, AND AGAIN FROM 1989 TO THE PRESENT THE PROPERTY WAS AND HAS BEEN USED AS AN AUTOMOBILE JUNKYARD WITH PERIODS OF ACTIVITY INVOLVING SALVAGE OPERATIONS. THESE SALVAGE OPERATIONS INVOLVE RECOVERING SCRAP IRON FROM USED STORAGE TANKS, SOME OF WHICH HAVE BEEN OBSERVED TO STILL CONTAIN ORGANIC SUBSTANCES. AT SOME POINT DURING THE PAST 10 TO 15 YEARS, TWO LARGE PILES (TOTALING APPROXIMATELY 1,000 CUBIC YARDS) OF USED BATTERY CASINGS ACCUMULATED ON THE SITE IN ADDITION TO EMPTY STORAGE TANKS, EMPTY DRUMS, JUNK CARS, AND MISCELLANEOUS SCRAP METAL. THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL RESOURCES (PADER) REPORTED THAT OPERATIONS ON THE SITE ALLEGEDLY CEASED IN 1979.

ON DECEMBER 15, 1985, THE EPA REGION III FIELD INVESTIGATION TEAM (FIT III) VISITED THE SITE FOR THE PURPOSE OF CONDUCTING A SITE INSPECTION (SI). THE SITE INSPECTION REPORT REVEALED THE PRESENCE OF TWO BATTERY PILES AT THE SITE, TERMED THE "EASTERN PILE" AND THE "WESTERN PILE". THE MAJOR CONTAMINANTS IDENTIFIED DURING THE SI INCLUDE LEAD IN SOILS DOWNGRADIENT FROM THE BATTERY PILES AND CHROMIUM IN DOWNGRADIENT IRON RUN SEDIMENTS.

THE HEBELKA SITE WAS PROPOSED FOR INCLUSION ON THE NATIONAL PRIORITIES LIST (NPL) ON JUNE 1, 1986 PURSUANT TO THE COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT (CERCLA), 42 USC SS 9601-9675. A PHASE I REMEDIAL INVESTIGATION AND FEASIBILITY STUDY (RI/FS) WAS CONDUCTED BETWEEN MARCH 1987 AND MARCH 1989 TO EXAMINE THE NATURE AND EXTENT OF CONTAMINATION AND TO IDENTIFY ALTERNATIVES FOR REMEDIATING THE SITE CONDITIONS. THIS PHASE I INVESTIGATION STUDIED ENVIRONMENTAL AREAS WHICH WERE LATER IDENTIFIED AS COMPONENTS OF BOTH OU1 AND OU 2. THE DRAFT RI/FS REPORTS WERE RELEASED TO THE PUBLIC ON MARCH 1, 1989. SUBSEQUENTLY A PHASE II RI SAMPLING EVENT WAS CONDUCTED IN FEBRUARY 1991 TO FURTHER DELINEATE THE EXTENT OF LEAD CONTAMINATION BOTH ON THE SITE AND IN THE SURROUNDING ENVIRONMENT. THE EXTENT OF CONTAMINATION FOR THE SOILS HAS BEEN DELINEATED ON A SERIES OF ISOCONTOURS INCLUDED ON FIGURE 3.

#HCP
3. HIGHLIGHTS OF COMMUNITY PARTICIPATION

ALTHOUGH THE HEBELKA SITE IS LOCATED IN A RURAL AREA, RESIDENTIAL PROPERTIES ARE WITHIN CLOSE PROXIMITY. IN MAY 1986, EPA DISTRIBUTED A PRESS RELEASE ANNOUNCING THAT THE HEBELKA SITE WAS PROPOSED FOR THE NPL. ONSITE AND TELEPHONE INTERVIEWS WERE CONDUCTED WITH LOCAL RESIDENTS AND OFFICIALS IN JULY 1987, IN LATE 1990, AND ALSO THROUGHOUT THE FIRST EIGHT MONTHS OF 1991. NO CITIZENS GROUP IS ASSOCIATED WITH THE SITE, AND EPA ACTIVITIES AT THE SITE HAVE NOT BEEN A MAJOR CONCERN TO LOCAL RESIDENTS.

AS REQUIRED IN THE CERCLA SECTION 117 (A), 42 USC S 9617 (A), THE RI/FS REPORTS AND THE PROPOSED PLAN FOR THE HEBELKA SITE (OU 2) WERE RELEASED TO THE PUBLIC FOR COMMENT ON JULY 24, 1991. THESE TWO DOCUMENTS, ALONG WITH OTHER DOCUMENTS RELEVANT TO THIS DECISION, WERE MADE AVAILABLE TO THE PUBLIC IN BOTH THE ADMINISTRATIVE RECORD LOCATED IN INFORMATION REPOSITORIES MAINTAINED AT THE EPA DOCKET ROOM IN REGION III AND AT THE WEISENBERG TOWNSHIP ADMINISTRATION BUILDING. THE NOTICE OF AVAILABILITY FOR THE ADMINISTRATIVE RECORD WAS PUBLISHED IN THE ALLENTOWN MORNING CALL ON JULY 25, 1991. A PUBLIC COMMENT PERIOD ON THE DOCUMENTS WAS HELD FROM JULY 25, 1991 THROUGH AUGUST 24, 1991. COMMENTS WHICH WERE RECEIVED ARE ADDRESSED LATER IN THIS DOCUMENT IN THE RESPONSIVENESS SUMMARY. THERE WAS NO PUBLIC MEETING HELD FOR OU 2.

#SROU
4. SCOPE AND ROLE OF OPERABLE UNIT (OU 2) OR RESPONSE ACTION WITHIN SITE STRATEGY

AS WITH MANY SUPERFUND SITES, THE PROBLEMS AT THE HEBELKA SITE ARE COMPLEX. AS A RESULT, EPA HAS ORGANIZED THE REMEDIAL WORK INTO TWO OPERABLE UNITS AT THE SITE.

THE HEBELKA SITE WAS PLACED ON THE NPL ON JULY 1, 1987, BASED ON THE FINDINGS OF THE SI. AS DESCRIBED ABOVE THERE ARE TWO OPERABLE UNITS FOR THIS SITE. BOTH OF THESE OPERABLE UNITS WERE INVESTIGATED IN TWO SEPARATE

SAMPLING EVENTS; REFERRED TO AS PHASE I SAMPLING AND PHASE II SAMPLING. THE PRIME FOCUS OF THE PHASE I SAMPLING WAS THE AREAS OF HIGHEST LEAD CONCENTRATIONS IN THE SOIL WITH SOME ADDITIONAL WORK TO INSURE THAT ALL OU1 SOIL AREAS WERE IDENTIFIED. PHASE II WORK WAS STRUCTURED TO DETERMINE IF LEAD WAS MIGRATING OFF-SITE VIA AIR, SURFACE WATER AND/OR GROUNDWATER, AND TO FURTHER EVALUATE THE EXTENT OF LEAD CONTAMINATION IN SOILS, WITH THE PRIME FOCUS OF THIS INVESTIGATION ON THE AREAS OUTSIDE OF THE OU1 AREA.

OU1 ADDRESSED THE AREAS OF THE SITE WITH LEAD IN SOIL CONCENTRATIONS ABOVE 560 MG/KG AND THE PILES OF SCRAP BATTERY CASINGS LYING ON TOP OF THESE SOIL AREAS. THE CHOSEN REMEDIAL ALTERNATIVE FOR OU1 WERE DESCRIBED IN A ROD WHICH WAS ISSUED ON MARCH 31, 1989. THE SOIL AREAS IDENTIFIED IN THE RI DOCUMENT FOR OU1 HAVE BEEN SUBSEQUENTLY SLIGHTLY MODIFIED IN THE RI/FS DOCUMENTS AND IN FIGURE 3 TO BE DEFINED AS THE AREA WITH LEAD CONCENTRATIONS ABOVE 500 MG/KG. THIS MODIFICATION WAS DONE TO PLACE THIS ACTION IN ACCORDANCE WITH THE MOST RECENT LEAD-IN-SOIL POLICY ESTABLISHED FOR EPA REGION III. THIS CHANGE WILL BE FORMALLY PROPOSED FOR OU1 IN THE NEAR FUTURE THROUGH AN EXPLANATION OF SIGNIFICANT DIFFERENCES. THE REMEDIAL ACTION FOR OU1 IS CURRENTLY IN THE DESIGN PHASE WITH THE DESIGN EXPECTED TO BE COMPLETE BY JANUARY 1992. THIS REMEDIAL ACTION FOR OU1 WILL ADDRESS THE PRINCIPAL THREATS FROM THE SITE, NAMELY THE AREAS OF HIGH CONCENTRATIONS OF LEAD IN THE SOILS.

THE PHASE I REMEDIAL INVESTIGATION OF THE SITE WAS INITIATED ON MARCH 3, 1987. THE ONSITE REMEDIAL INVESTIGATION FIELD ACTIVITIES INCLUDED THE COLLECTION OF SAMPLES FROM CONTAMINANT SOURCES, SURFACE AND SUBSURFACE SOILS, GROUND WATER, SURFACE WATER, AND SEDIMENT, AS WELL AS THE PERFORMANCE OF AQUIFER TESTS (SLUG TESTS) AND A BIOTA INVESTIGATION ALONG IRON RUN. BASED ON THE RESULTS OBTAINED IN THE PHASE I TESTING, INCLUDING THE RESULTING RISK ASSESSMENT, THE PHASE II SAMPLE WORK WAS STRUCTURED TO DEFINE THE EXTENT OF CONTAMINATION FOR LEAD IN EACH OF THE ENVIRONMENTAL MEDIA AND TO ANSWER THE FOUR SPECIFIC QUESTIONS LISTED BELOW.

OU2 ADDRESSES THE SOILS OUTSIDE OF THIS HIGH CONCENTRATION AREA; THE AIR IN THE VICINITY OF THE SITE; THE GROUNDWATER IN THE VICINITY OF THE SITE (INCLUDING THE NEARBY HOME WELL WATER); THE NEARBY STREAM WATER AND THE STREAM SEDIMENTS.

AS A RESULT OF THE ROD FOR OU1 SEVERAL ISSUES REMAINED UNRESOLVED. THESE WERE:

A) WHETHER THE LEAD FROM THE SITE WAS MIGRATING OFF-SITE TO EITHER THE SURFACE OR GROUND WATERS?

B) WHETHER LEAD FROM THE SITE WAS AFFECTING NEARBY HOME DRINKING WELLS?

C) WHAT IS THE FULL EXTENT OF LEAD CONTAMINATION ON THE SITE?

NOTE: DURING THE PHASE I SAMPLING EVENT IT WAS THOUGHT THAT THE CONTAMINATED SOIL AREA WAS BETWEEN THE TWO BATTERY PILES, HOWEVER, THE PHASE I SAMPLING DETERMINED THAT THE HIGH LEAD LEVELS WERE ACTUALLY LOCATED TO THE WEST OF THE WESTERN BATTERY PILE. THEREFORE, THE EXTENT OF THE CONTAMINATION HAD TO BE DEFINED THROUGH A SECOND SAMPLING EVENT.

D) WHETHER LEAD FROM THE SITE WAS AFFECTING BIOTA IN THE NEARBY IRON RUN CREEK?

TO ANSWER THESE QUESTIONS, A PHASE II SAMPLING EVENT WAS SCHEDULED FOR THE SITE. THIS EVENT WAS COORDINATED WITH PADER AND ACTUAL SAMPLING AT THE SITE OCCURRED DURING FEBRUARY 1991.

THE POTENTIAL FOR CONTAMINANT MIGRATION WAS ADDRESSED BY SAMPLING SURFACE SOIL ALONG POTENTIAL MIGRATION ROUTES; SAMPLING GROUND WATER IN DOWNGRADIENT MONITORING WELLS AND FROM NEARBY RESIDENTIAL WELLS; SAMPLING SURFACE WATER AND SEDIMENT AT LOCATIONS UPGRADIENT AND DOWNGRADIENT FROM THE SITE; PERFORMING AQUIFER TESTS (I.E. ESTIMATING THE GROUND WATER FLOW RATE AND DIRECTION); EXAMINING THE GROUND WATER FLOW RATE AND DIRECTION; AND EXAMINING THE BIOTA IN IRON RUN FOR INDICATIONS OF ADVERSE EFFECTS DUE TO SITE-RELATED CONTAMINATION. THE FIELD ACTIVITIES CONDUCTED DURING THE PHASE I EVENT INCLUDED THE COLLECTION OF 14 SURFACE SOIL SAMPLES FROM SELECTED LOCATIONS TO INVESTIGATE THE PRESENCE OF PREVIOUSLY UNIDENTIFIED CONTAMINANT SOURCES AND/OR MIGRATION ROUTES. BECAUSE THESE SAMPLES SERVED, IN PART, AS A SCREENING FUNCTION, THEY WERE SUBJECTED TO A BROADER ARRAY OF ANALYSES, INCLUDING TARGET COMPOUND LIST (TCL) VOLATILE ORGANICS, TAL INORGANICS, PESTICIDES, PAHS, CEC (CATION EXCHANGE CAPACITY), PH, AND EH.

DOWNGRADIENT SURFACE WATER AND SEDIMENT SAMPLES WERE SUBJECTED TO THE SAME ANALYSES AS THE BACKGROUND SAMPLES DESCRIBED EARLIER. BASED ON THE HUNDREDS OF SURFACE SOIL SAMPLES OBTAINED AND ANALYZED DURING BOTH PHASES OF TESTING, EPA HAS BEEN ABLE TO DEVELOP A REASONABLY ACCURATE PROFILE OF THE LEAD CONTAMINATION ON THE SITE AND THE DELINEATION OF THE TWO OPERABLE UNITS.

#SSC
5. SUMMARY OF SITE CHARACTERISTICS

THE OVERBURDEN SOIL ON THE SITE EXISTS ALMOST EXCLUSIVELY AT THE LOWER ELEVATIONS NEAR THE SOUTHERN BORDER. AT THE LOWER ELEVATIONS, THE OVERBURDEN THICKNESS ENCOUNTERED IN MONITORING WELL BORINGS VARIED BETWEEN 5.5 AND 10.5 FEET. AT THE HIGHER ELEVATIONS, WEATHERED BEDROCK WAS ENCOUNTERED WITHIN ONE FOOT OF THE SURFACE.

THE BEDROCK UNDER THE SITE CONSISTS OF THE BUSHKILL MEMBER OF THE MARTINSBURG FORMATION. THE BEDROCK IS COMPOSED OF VERY BROKEN TO MODERATELY BROKEN SILTY SHALE WITH QUARTZ ZONES INTERBEDDED THROUGHOUT. THE EXTENT OF FRACTURING TENDS TO DECREASE WITH INCREASING DEPTH. BEDROCK BECOMES INCREASINGLY CALCAREOUS WITH DEPTH, POSSIBLY INDICATING A FORMATION CHANGE. THE SURFACE OF THE BEDROCK SLOPES GENERALLY TOWARD THE SOUTHEAST.

GROUNDWATER AT THE HEBELKA SITE FLOWS TOWARD THE SOUTHWEST, GENERALLY PARALLEL TO THE BEDROCK SURFACE, THROUGH OPENINGS AND FRACTURES IN THE MARTINSBURG SHALE WITH AN AVERAGE HORIZONTAL HYDRAULIC GRADIENT OF 0.063 FEET/FOOT. THE GROUND WATER ALSO EXHIBITS A DOWNWARD VERTICAL HYDRAULIC GRADIENT (0.35 FEET/FOOT AVERAGE), WHICH TENDS TO INCREASE TOWARD THE SOUTHWEST AND MAY BE INDICATIVE OF VERTICAL LEAKAGE INTO THE UNDERLYING CARBONATE LAYER. CALCULATIONS FROM THE SLUG TEST DATA INDICATE THAT GROUND WATER IS FLOWING TOWARD THE SOUTHWEST AT APPROXIMATELY 212 FEET PER YEAR.

BATTERY LIQUID AND RESIDUAL SOLID WASTE SAMPLES IN THE OU1 AREAS EXHIBITED HIGH CONCENTRATIONS FOR LEAD AND ACIDITY. LEAD CONCENTRATIONS IN THE LIQUIDS RANGED BETWEEN 7,320 UG/L (PARTS PER BILLION) AND 1,100,000 UG/L, AND ACIDITY VALUES WERE AS HIGH AS 66 MG/L (AS CACO3). AS EXPECTED, LEAD LEVELS DECREASED RAPIDLY, ALMOST IN DIRECT CORRELATION WITH DISTANCE FROM THE BATTERY PILES IN THE OU1 AREA. AT A AVERAGE DISTANCE OF 75 METERS FROM THE AREAS OF HIGHEST LEAD IN SOIL CONCENTRATIONS, THE LEAD IN SOIL CONCENTRATIONS APPROXIMATED BACKGROUND LEVELS. IT WAS NOTED, HOWEVER, THAT THE EXTENT OF THE AREA OF HIGHEST (2,000 PPM) LEAD CONCENTRATION HAS, APPARENTLY INCREASED APPROXIMATELY 10 PERCENT BETWEEN THE TIME OF THE PHASE 1 SAMPLING TO THE TIME (APPROXIMATELY EIGHTEEN MONTHS) OF THE PHASE II SAMPLING. IT IS THOUGHT THAT THIS IS DUE TO BOTH ENVIRONMENTAL CONDITIONS AND THE RENEWED INDUSTRIAL ACTIVITY IN THESE AREAS. TCLP ANALYSES WERE CONDUCTED ON LEAD CONTAMINATED SOILS AS PART OF THE ROD FOR OU1. THESE TESTS WERE CONDUCTED IN ACCORD WITH THE PROTOCOL SET FORTH IN 40 CFR SECTION 261.24. NONE OF THE SOILS OR SEDIMENTS DEFINED AS PART OF OU2 FOR THIS DECISION FAILED THIS TEST.

BACKGROUND SOIL BORING SAMPLE ANALYSES INDICATE ONSITE, BACKGROUND, AND SURFACE SOIL LEAD CONCENTRATIONS OF 133 AND 140 MG/KG, COMPARED TO AN EXPECTED AVERAGE BACKGROUND CONCENTRATION RANGE OF 2 TO 200 MG/KG FOUND IN LITERATURE (LINDSAY, 1979). SURFACE SOIL CONTAMINATION DETECTED ON THE SITE CONSISTS PRIMARILY OF LEAD IN SOIL UNDER AND NEAR THE BATTERY PILES. THE SURFACE SAMPLES (0 TO 3 INCHES) FROM SOIL BORINGS AND THE SURFACE SOIL GRID SAMPLES CORRELATED WELL WITH RESPECT TO DETECTED LEAD CONCENTRATIONS. THE DEEPER SOIL BORING SAMPLES DEMONSTRATED THAT CONTAMINATION WAS AT OR BELOW BACKGROUND CONCENTRATIONS AT DEPTHS GREATER THAN 3 FEET. LEAD CONCENTRATIONS WERE HIGHEST IN SURFACE SOIL SAMPLES COLLECTED FROM BORINGS LOCATED UNDER THE BATTERY PILES (TYPICAL HIGH VALUES: 5,090, 15,000 AND 65,100 MG/KG). ABOVE-BACKGROUND SURFACE SOIL LEAD CONCENTRATIONS RANGING BETWEEN 200 AND 3,000 MG/KG ARE GENERALLY CONFINED TO AREAS WITHIN 30 FEET OF A BATTERY PILE PERIMETER. EXCEPTIONS DO OCCUR FOR AN AREA NORTHWEST OF THE WESTERN BATTERY PILE AND TWO ISOLATED LOCATIONS WEST OF AND ADJACENT TO TERCHA ROAD. FIGURE 3 SHOWS THE EXTENT AND CONCENTRATION OF LEAD CONTAMINATION IN THE SOIL.

BOTH FILTERED AND UNFILTERED GROUND WATER SAMPLES WERE COLLECTED FROM ONSITE MONITORING WELLS IN BOTH THE PHASE I AND PHASE II SAMPLING. FILTERED SAMPLES WERE COLLECTED TO EXAMINE GROUNDWATER FOR ITS DISSOLVED METALS CONTENT. ONLY ONE OF THE 10 FILTERED SAMPLES IN PHASE I RESULTED IN A REPORTED LEAD CONCENTRATION. LEAD WAS DETECTED AT A CONCENTRATION OF 6.8 UG/L IN THAT ONE SAMPLE. (NOTE: THE CURRENT FEDERAL SAFE DRINKING WATER ACT MAXIMUM CONCENTRATION LEVEL (MCL) IS 15 UG/L). THIS MONITORING WELL WAS RESAMPLED DURING THE PHASE II SAMPLING EVENT AND NO DISSOLVED LEAD WAS FOUND AT THAT TIME. NONE OF THE 10 FILTERED MONITORING WELL SAMPLES IN THE PHASE II SAMPLING CONTAINED DISSOLVED LEAD. UNFILTERED GROUND WATER SAMPLES EXHIBITED A RANGE OF LEAD CONCENTRATIONS FROM 13 UG/L TO 6,250 UG/L. THERE WAS NO CORRELATION BETWEEN THE UNFILTERED LEAD CONCENTRATIONS AND THE SURFACE SOIL LEAD CONTAMINATION. THE HIGHEST CONCENTRATION OCCURRED IN THE SAMPLE TAKEN FROM THE MOST DOWN-GRADIENT MONITORING WELL. IF THE OBSERVED LEAD CONCENTRATIONS IN GROUNDWATER WERE ATTRIBUTABLE TO THE SITE, THE READINGS FROM THE MONITORING WELLS WOULD HAVE BEEN EXPECTED TO BE MORE HOMOGENOUS.

OFFSITE SAMPLING ACTIVITIES INCLUDED SURFACE WATER AND SEDIMENT SAMPLES FROM IRON RUN, THE UNNAMED TRIBUTARY DISCHARGING FROM THE HEBELKA SITE TO IRON RUN, THE STORM WATER DISCHARGE SERVING THE HIGHWAY SOUTH OF IRON RUN AND ELEVEN RESIDENCES BORDERING THE SITE. THE ANALYSES OF SURFACE WATER SAMPLES INDICATED LITTLE DIFFERENCE IN WATER QUALITY BETWEEN UPSTREAM AND DOWNSTREAM (FROM THE HEBELKA SITE) LOCATIONS. ADDITIONALLY, NO DETECTABLE LEVELS OF EITHER LEAD OR HEXAVALENT CHROMIUM WERE FOUND IN THE SURFACE WATER SAMPLES. SOME OF THE HOME WELL SAMPLES SHOWED TRACES OF LEAD, HOWEVER, THESE LEVELS WERE WELL BELOW EPA ACTION LEVELS AND CONSISTENT WITH VALUES OBTAINED FROM HOMES WITH RECENT PLUMBING WORK. THE RESIDENTIAL SAMPLES WERE OBTAINED

IN EACH CASE FROM THE TAP NOT THE WELL ITSELF. THE PHASE II DOWNSTREAM SEDIMENT SAMPLES, FROM IRON RUN, EXHIBITED A GENERALLY INCREASING TREND (IN LEAD CONCENTRATIONS) DOWNSTREAM OF THE CONFLUENCE WITH THE INTERMITTENT STREAM FROM THE SITE, BUT THE MAXIMUM DOWNSTREAM CONCENTRATION WAS ONLY 159 MG/KG. THE PHASE II BIOASSESSMENT (PRELIMINARY) STUDY SHOWED THAT THESE LEAD CONCENTRATIONS APPARENTLY HAD NO IMPACT ON STREAM BIOTA.

#SSR
6. SUMMARY OF SITE RISKS

THE RISKS POSED BY THIS SITE TO THE NEARBY ENVIRONMENT ARE DUE TO THE PRESENCE OF INORGANIC LEAD. INORGANIC LEAD MAY BE ABSORBED BY INHALATION OR BY INGESTION. ABSORPTION BY EITHER ROUTE CONTRIBUTES IN AN ADDITIVE FASHION TO THE TOTAL BODY BURDEN. AMONG ADULTS, INHALATION IS THE MORE EFFICIENT OF THE TWO MECHANISMS. THE FRACTION OF INHALED LEAD ABSORBED FROM THE RESPIRATORY TRACT IS APPROXIMATELY 40 PERCENT, WHILE THE FRACTION OF INGESTED LEAD ABSORBED FROM THE GASTROINTESTINAL TRACT IS APPROXIMATELY 10 PERCENT. THESE RATES MAY BE HIGHER IN CHILDREN AND ARE OF PARTICULAR RELEVANCE IN ASSESSING EXPOSURES IN THIS SENSITIVE SUBPOPULATION.

THE TOXICOLOGY OF LEAD HAS BEEN EXTENSIVELY REVIEWED. ALTERATIONS IN THE HEMATOPOIETIC (BLOOD FORMING) AND CENTRAL NERVOUS SYSTEMS ARE THE PRIMARY TOXIC EFFECTS CAUSED BY EXPOSURES TO LEAD. COGNITIVE AND BEHAVIORAL DEFICITS ARE THE FOCUS OF MUCH CURRENT RESEARCH ON RELATIVELY LOW LEVELS OF LEAD EXPOSURE.

THE CENTERS FOR DISEASE CONTROL (CDC) HAS DETERMINED THAT A BLOOD LEAD LEVEL IN CHILDREN OF 25 UG/DL OR ABOVE INDICATES EXCESSIVE LEAD ABSORPTION AND CONSTITUTES GROUNDS FOR MEDICAL INTERVENTION. THAT DETERMINATION IS BASED ON THE OCCURRENCE OF ENZYMATIC ABNORMALITIES IN THE RED BLOOD CELLS AT BLOOD LEAD LEVELS ABOVE 25 UG/DL AND BY THE FINDING OF NEUROLOGIC DYSFUNCTION IN CHILDREN AT BLOOD LEAD LEVELS BETWEEN 35 AND 50 UG/DL. FURTHER, THE CDC DEFINES CHILDHOOD LEAD POISONING AT A BLOOD LEAD LEVEL OF 25 UG/DL IN ASSOCIATION WITH AN ERYTHROCYTE PROTOPORPHYRIN (EP) LEVEL OF 35 UG/DL OR ABOVE (CDC 1985). IN ITS DRAFT TOXICOLOGICAL PROFILE FOR LEAD, CDC HAS ALSO CAUTIONED THAT CONCENTRATIONS GREATER THAN 500 TO 1000 PPM COULD LEAD TO ELEVATED BLOOD LEAD LEVELS IN CHILDREN INHALING OR SWALLOWING DIRT. RECENT FINDINGS OF COGNITIVE DEFICITS ASSOCIATED WITH LOWER BLOOD LEAD CONCENTRATIONS MAY RESULT IN A REVIEW OF THE ADEQUACY OF THE EXISTING CDC THRESHOLD LEVEL.

EXPOSURE SCENARIOS CONSIDERED FOR POTENTIAL CONTACT WITH CONTAMINATED SURFACE SOILS INCLUDE CHILDREN WHO MAY BE EXPOSED TO ONSITE SURFACE SOIL VIA DERMAL CONTACT AND ACCIDENTAL INGESTION. ADULT DERMAL EXPOSURE MAY OCCUR THROUGH WORK ACTIVITIES OR OCCASIONAL CONTACT. TO PROVIDE A WORST-CASE ESTIMATE OF HEALTH EFFECTS, THE MAXIMUM CONCENTRATIONS OF INDICATOR COMPOUNDS WERE EMPLOYED.

FOR CARCINOGENS, THE ESTIMATED DOSE CAN BE CONVERTED TO INCREMENTAL LIFETIME CANCER RISK, WHICH REPRESENTS THE PROBABILITY OR RANGE OF PROBABILITIES THAT A CARCINOGENIC EFFECT WILL OCCUR. FOR KNOWN OR SUSPECTED CARCINOGENS, ACCEPTABLE EXPOSURE LEVELS ARE GENERALLY CONCENTRATION LEVELS THAT REPRESENT AN EXCESS UPPERBOUND LIFETIME CANCER RISK TO AN INDIVIDUAL OF BETWEEN (10-4) AND (10-6) USING INFORMATION ON THE RELATIONSHIP BETWEEN DOSE AND RESPONSE. CARCINOGENIC RISKS OF (10-4) TO (10-6) CORRESPOND TO ONE ADDITIONAL CASE OF CANCER IN 10,000 AND 1,000,000 RECEPTORS EXPOSED, RESPECTIVELY.

TO EVALUATE THE POTENTIAL FOR NONCARCINOGENIC EFFECTS, THE ESTIMATED DAILY DOSE IS COMPARED DIRECTLY TO REFERENCE DOSE. THE RATIO OF THE ESTIMATED EXPOSURE LEVEL TO AN ACCEPTABLE EXPOSURE LEVEL PROVIDES A NUMERICAL INDICATION OF POTENTIAL FOR ADVERSE EFFECTS. TO ASSESS THE TOTAL POTENTIAL FOR NONCARCINOGENIC EFFECTS POSED, A HAZARD INDEX CAN BE CALCULATED. WHEN THE HAZARD INDEX IS GREATER THAN ONE, THE POTENTIAL FOR ADVERSE NONCARCINOGENIC EFFECTS IS INCREASED. WHEN A HAZARD INDEX IS LESS THAN OR EQUAL TO ONE, NO ADVERSE NONCARCINOGENIC EFFECTS ARE EXPECTED.

A SUMMARY OF THE HEALTH AND ENVIRONMENTAL RISKS ASSOCIATED WITH THE HEBELKA SITE IS PRESENTED BELOW, AND IN TABLE 1:

A COMPARISON OF LEAD CONCENTRATIONS DETECTED IN SAMPLES COLLECTED DURING THE RESIDENTIAL WELL SURVEY TO AVAILABLE STANDARDS INDICATES THAT METALS CONCENTRATIONS, INCLUDING LEAD, OBSERVED IN THE RESIDENTIAL WELL SAMPLES ARE LESS THAN THE CURRENT FEDERAL ACTION LEVEL WHICH IS SET AT 0.015 MG/L. THE MAXIMUM LEAD CONCENTRATION DETECTED IN THE RESIDENTIAL WELLS WAS 0.0026 MG/L. THIS FACT AND THE FACTS THAT LEAD WAS NOT DETECTED IN ANY FILTERED ONSITE MONITORING WELL SAMPLES DURING THE PHASE II SAMPLING EVENT AND THAT, THE RESIDENTIAL WELLS WHERE MEASURED LEAD LEVELS OCCURRED ARE SITUATED BOTH UP AND DOWN GRADIENT FROM THE SITE, SUGGESTING THAT THE LOW-LEVEL LEAD CONCENTRATIONS (LESS THAN 0.003 MG/L) DETECTED IN THE RESIDENTIAL WELLS ARE NOT THE RESULT OF LEAD MIGRATION FROM THE SITE. THE LOW-LEVEL LEAD CONCENTRATIONS OBSERVED ARE MOST LIKELY DUE TO OTHER SOURCES, POSSIBLY LEAD IN PIPING OR SOLDER OR NATURAL LEAD LEVELS IN THE GROUNDWATER.

ACCIDENTAL INGESTION OF ONSITE SURFACE SOILS BY CHILDREN IS LIKELY TO POSE A POTENTIAL FOR NONCARCINOGENIC HEALTH EFFECTS. THIS IS EVIDENCED BY THE CALCULATED WORST-CASE HAZARD INDICES OF GREATER THAN ONE FOR ALL AREAS OF THE SITE. THESE HAZARD INDICES CAN BE ATTRIBUTED TO THE PRESENCE OF LEAD IN SURFACE SOILS. WHILE

THIS IS OF CONCERN AT THIS SITE, THE SURFACE SOILS, WHERE IN EXCESS OF THE SOIL ACTION LEVEL OF 500 MG/KG ARE BEING ADDRESSED UNDER THE RESPONSE ACTION DESCRIBED IN THE ROD FOR OU1 AND THE FORTHCOMING ESD ON LEAD-IN-SOIL CLEANUP LEVELS. THEREFORE, BY DEFINITION, THE OTHER SOIL AREAS LOOKED AS PART OF OU2, ARE BELOW THE FEDERAL ACTION LEVEL.

CARCINOGENIC RISK ESTIMATES ASSOCIATED WITH ACCIDENTAL INGESTION OF CONTAMINATED SURFACE SOILS BY CHILDREN RANGE FROM 1.37 X (10-11) TO 2.52 X (10-5). THE HIGHEST RISK ESTIMATES ARE ASSOCIATED WITH EXPOSURE TO SURFACE SOILS CONTAINING PAHS IN THE NORTH-CENTRAL PORTION OF THE SITE. THESE AREAS ARE THE SAME AS THOSE BEING ADDRESSED UNDER OU1 AND, THEREFORE, ARE NOT OF CONCERN FOR THE PURPOSES OF OU2.

DERMAL CONTACT WITH ONSITE SURFACE SOILS BY CHILDREN AND ADULTS POSES A MINIMAL POTENTIAL FOR NONCARCINOGENIC HEALTH EFFECTS. THE CALCULATED HAZARD INDICES ARE LESS THAN ONE; THEREFORE, ADVERSE EFFECTS ASSOCIATED WITH DERMAL EXPOSURE TO SURFACE SOILS ARE NOT EXPECTED. AS ABOVE, THE SURFACE SOIL AREAS OF EVEN THIS MINIMAL CONCERN ARE THOSE TO BE ADDRESSED BY OU 1.

CARCINOGENIC RISK ESTIMATES ASSOCIATED WITH DERMAL CONTACT OF ONSITE SURFACE SOILS BY CHILDREN AND ADULTS RANGE FROM 1.67 X (10-12) TO 1.39 X (10-5). THE HIGHEST RISK ESTIMATES ARE ASSOCIATED WITH EXPOSURE TO SURFACE SOILS CONTAINING PAHS IN THE NORTH-CENTRAL PORTION OF THE SITE. AS THIS AREA IS COVERED UNDER OU1 FOR THIS SITE, THE RESIDUAL RISK IS LESS THAN 1 X (10-8), THEREFORE, IN ACCORD WITH THE NCP, THIS IS BELOW THE ACTION LEVEL.

LONG-TERM INHALATION OF AIR CONTAINING PARTICULATE LEAD AT A DISTANCE OF 700 METERS (THE APPROXIMATE DISTANCE TO THE NEAREST RECEPTOR HOME) FROM THE BATTERY PILES IS UNLIKELY TO BE ASSOCIATED WITH ADVERSE HEALTH EFFECTS.

AQUATIC BIOTA IN IRON RUN ARE NOT ADVERSELY EFFECTED BY SITE-ASSOCIATED HAZARDOUS CONSTITUENTS. EXPOSURE OF TERRESTRIAL BIOTA TO SURFACE SOILS IS OF POTENTIAL CONCERN. TO ADDRESS THIS CONCERN EPA WILL CONDUCT A BIOASSESSMENT STUDY AS PART OF THE FOLLOW-UP MONITORING PROGRAM.

#SD
7. STATUTORY DETERMINATIONS

THE COMMONWEALTH OF PENNSYLVANIA HAS AN ARAR FOR GROUNDWATER FOR HAZARDOUS SUBSTANCES WHICH STATES THAT ALL GROUNDWATER MUST BE REMEDIATED TO "BACKGROUND" QUALITY. THIS REQUIREMENT HAS BEEN INTERPRETED FROM THE COMMONWEALTH'S CODE 25 PA SS264.90 - 264.100, SPECIFICALLY 25 PA CODE SS264.97(I) AND (J) AND S264.100(A)(9). THE COMMONWEALTH ALSO MAINTAINS THAT THE REQUIREMENT TO REMEDIATE TO BACKGROUND IS ALSO FOUND IN OTHER LEGAL AUTHORITIES. THIS ARAR IS NOT TRIGGERED AT THIS SITE BECAUSE THE FILTERED MONITORING WELL SAMPLES (OTHER THAN ONE LOW LEVEL SAMPLE FROM THE PHASE I SAMPLING) INDICATED THAT LEAD WAS NOT PRESENT IN THE GROUNDWATER. ALTHOUGH LEAD WAS DETERMINED PRESENT IN THE RESIDENTIAL WELLS, EPA BELIEVES THAT THE LEAD DETECTED IS DUE TO LEAD PRESENT IN HOME PLUMBING SYSTEMS, AND ARE NOT SITE RELATED. IN ADDITION, THE LEAD LEVELS DETERMINED PRESENT IN THE RESIDENTIAL WELLS MAY CONSTITUTE BACKGROUND LEVELS. WHILE IT IS TRUE THAT LEAD WAS DETERMINED PRESENT IN THE UNFILTERED GROUNDWATER SAMPLES, EPA REGIONAL POLICY IS THAT THE RISK DETERMINATIONS AT THIS SITE, FOR GROUNDWATER, BE BASED ON THE FILTERED SAMPLES. THEREFORE THE "NO ACTION" REMEDY SELECTED IS PROTECTIVE OF HUMAN HEALTH AND THE ENVIRONMENT.

#SR
8. SELECTED REMEDY

EPA HAS DETERMINED THAT NO FURTHER ACTION IS NECESSARY FOR OU2 AT THE SITE BECAUSE THESE SITE PORTIONS (LEAD-IN-SOIL CONCENTRATIONS UNDER 500 MG/KG, GROUNDWATER, SURFACE WATER, AIR) INVESTIGATED FOR OU2 POSE NO CURRENT OR POTENTIAL THREAT TO HUMAN HEALTH AND THE ENVIRONMENT, AND THE RESPONSE WHICH SHALL BE TAKEN PURSUANT TO THE ROD FOR OU1 WILL ELIMINATE THE NEED FOR ANY FURTHER REMEDIAL ACTION. HOWEVER, MONITORING SHALL BE CONDUCTED TO VERIFY THAT NO UNACCEPTABLE EXPOSURES TO POTENTIAL HAZARDS POSED BY CONDITIONS AT THE SITE OCCUR IN THE FUTURE.

MONITORING OF THE GROUNDWATER AND THE NEARBY STREAM AND SEDIMENT WILL BE PERFORMED ON AN ANNUAL BASIS TO VERIFY THAT THE EXPOSURE TO LEAD DOES NOT RISE ABOVE THE EXISTING FEDERAL MAXIMUM CONCENTRATION LEVELS. THE BASIS FOR CONTINUED MONITORING IS TWO-FOLD: FIRST, EPA WILL BE PERFORMING A SUBSTANTIAL AMOUNT OF REMEDIAL ACTIVITIES RELATED TO OU 1, AND EVEN THOUGH THERE HAS BEEN EXTENSIVE DOCUMENTATION REGARDING ALL OF THE LOCATIONS OF HIGH LEAD CONTAMINATION, EPA WANTS TO ASSURE THESE RESPONSE ACTIONS DO NOT RESULT IN ANY INCREASES IN LEAD LEVEL EXPOSURES; SECONDLY, THE SITE CONTINUES TO BE USED FOR VARIOUS INDUSTRIAL OPERATIONS ON THE PROPERTY INCLUDING AUTO SALVAGE WORK AND THERE IS A POTENTIAL THAT THIS ON-GOING INDUSTRIAL ACTIVITY MAY SPREAD THE EXISTING CONTAMINATION.

FURTHERMORE, AN ANNUAL GROUNDWATER AND STREAM WATER AND SEDIMENT MONITORING PROGRAM WILL BE IMPLEMENTED AT

THIS SITE. THIS MONITORING PROGRAM WILL CONSIST OF A MINIMUM OF TEN SAMPLES COMPOSED OF A MIX OF MONITORING WELLS, RESIDENTIAL WELLS, STREAM WATER, STREAM SEDIMENT, AND STREAM BIOTA (BIOASSESSMENT). THE SAMPLES WILL BE ANALYZED FOR LEAD, THE CONTAMINANT OF CONCERN AT THIS SITE.

THE ANNUAL COST OF THE MONITORING PROGRAM IS APPROXIMATELY $4,500 AND THE PRESENT WORTH COST FOR A 30-YEAR PERIOD IS APPROXIMATELY $66,300. FOR COSTING PURPOSES, IT HAS BEEN ASSUMED THAT THE SAMPLES WOULD BE ANALYZED FOR LEAD ONLY, THE PRIMARY CONTAMINANT AT THE HEBELKA SITE.

IN ADDITION TO A MONITORING PROGRAM, A BIOASSESSMENT FOLLOW-UP STUDY SHALL BE IMPLEMENTED FOR IRON RUN TO ENSURE THAT REMEDIAL ACTIONS TAKEN AT THE SITE, AS WELL AS ONGOING SALVAGE OPERATIONS DO NOT ADVERSELY IMPACT BIOTA IN IRON RUN. A TYPICAL BIOASSESSMENT FOLLOW-UP STUDY WOULD CONSIST OF A MACROINVERTEBRATE STUDY AS WELL AS SEMI-ANNUAL ANALYSIS OF SURFACE WATER AND SEDIMENT SAMPLES COLLECTED FROM THREE LOCATIONS IN IRON RUN. THE STUDY WOULD BE IMPLEMENTED FOR AN APPROXIMATE TWO-YEAR PERIOD FOLLOWING AND INCLUDING THE REMEDIAL ACTION PERIOD. THE TOTAL COST OF SUCH A STUDY IS APPROXIMATELY $125,000.

THE RESULTS OF THE MONITORING PROGRAM TOGETHER WITH THE RESULTS OF THE BIOASSESSMENT FOLLOW-UP STUDY WILL BE REVIEWED AS PART OF THE FIVE YEAR REVIEW TO BE PERFORMED FOR OU1 CONSISTENT WITH THE REQUIREMENTS OF SECTION 121(C) OF CERCLA; 42 USC S 9621(C) AND 40 CFR S 300.430(F)(4)(II) OF THE NCP.

7. EXPLANATION OF SIGNIFICANT CHANGES

THERE ARE NO SIGNIFICANT CHANGES BETWEEN THE "NO ACTION" REMEDY PRESENTED IN THE PROPOSED PLAN FOR THIS OU2 AND THAT SELECTED IN THIS DECISION DOCUMENT.

#TA

TABLE 1

RISK CHARACTERIZATION SUMMARY
HEBELKA SITE, LEHIGH COUNTY, PENNSYLVANIA

LEAD CONTAMINATION

EXPOSURE SCENARIO	HAZARD QUOTIENT	EXCESS LIFETIME CANCER RISK
INGESTION OF GROUNDWATER (1)	FILTERED GROUNDWATER LT 1	NC
	RESIDENTIAL WELLS LT 1	NC
INGESTION AND DERMAL CONTACT OF CONTAMINATED SURFACE SOILS (2)	OU1 (2)	OU1 (2)
INGESTION OF SEDIMENT (3)	3.23	NC
INHALATION OF AIRBORNE PARTICULATES	*	*

NOTES:

NC = NOT CALCULATED (LESS THAN (10-6))

(1) BASED ON THE VALUES DETERMINED IN THE ABOVE TABLE NO REMEDIAL ACTION IS NECESSARY TO REMEDIATE THE GROUND WATER.

(2) OU1 - EXPOSURES UNDER THIS ROUTE WILL BE ADDRESSED THROUGH THE REMEDIAL ACTION TO BE PERFORMED FOR OU1 FOR THIS SITE

(2) THE VALUES ASSOCIATED WITH CONTACT WITH THE SURFACE SOILS, ARE NOT INCLUDED SINCE THE SURFACE SOILS WITH ACTIONABLE CONCENTRATIONS OF LEAD ARE TO BE REMEDIATED AS PART OF OU 1.

(3) THERE IS SOME CONCERN ABOUT THE HAZARD QUOTIENT FOR THE EXPOSURE FROM THE INGESTION OF STREAM SEDIMENT. THE HAZARD QUOTIENT IS BASED ON A VALUE DETERMINED DURING THE 1989 SAMPLING EVENT. THE 1991 STREAM SEDIMENT SAMPLING EVENT SHOWED MUCH LOWER LEVELS. FURTHERMORE, AS PART OF THIS PHASE II INVESTIGATION A BIOASSESSMENT OF THE STREAM BIOTA WAS PERFORMED WHICH CHARACTERIZED THE STREAM BIOTA AS BEING UNAFFECTED BY THE ELEVATED LEAD LEVELS IN THE SEDIMENT. BASED ON THIS DETERMINATION IT HAS BEEN DECIDED THAT THE BEST COURSE OF ACTION IS NO REMEDIAL ACTION, HOWEVER EPA WILL CONTINUE TO MONITOR THE STREAM BIOTA FOR POTENTIAL ADVERSE IMPACTS. THE MONITORING PROGRAM IS DESCRIBED IN THE SELECTED REMEDY (BELOW) AND WILL CONTINUE UNTIL, AS PART OF THE FIVE YEAR REVIEW PROCESS FOR OU 1, A DETERMINATION TO REDUCE, OR DISCONTINUE THE MONITORING IS MADE.